

Columbia/Snake River Temperature  
Total Maximum Daily Load

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**Abstract:**

A Total Maximum Daily Load (TMDL) is a process and document required by the Clean Water Act for water bodies that do not achieve water quality standards. A TMDL establishes the amount or load of pollutant that a stream can receive and still achieve water quality standards. A problem assessment for water temperature in the Columbia and Snake Rivers was developed in support of a Total Maximum Daily Load (TMDL) for temperature being developed by EPA, Region 10. Temperature was found to exceed the water quality criteria established for the Columbia and Snake rivers by Washington, Oregon, Idaho and the Colville Tribe. The criteria are exceeded much of the summer along the length of the rivers within the TMDL project area. Based on scroll case temperature data, water temperature exceeded the criteria at Bonneville Dam during the 18 year period in which it was the only dam in the lower Columbia River. However, the frequency of exceedance of the criteria at Bonneville was 4 times greater after all of the dams were completed on the Snake and Columbia Rivers. Analyses in the problem assessment indicate that much of this warming trend is due to the presence of the dams on the Columbia and Snake rivers. Climate change probably also contributes to the warming trend, to a lesser extent. Warming of the tributaries also contributes to the trend but to a small degree. The TMDL allocates most of the loading capacity of the rivers to the site potential temperature of the river. Small allocations of load are provided to point sources, non-point sources and the dams as prescribed in state and tribal water quality standards.